Appendix M

Groundwater Monitoring Results for the Juniper Mine

GWSCREEN Version 2.5 - Test Problems (Card 1)
TIME OF RUN: 09:06:30.02 DATE OF RUN: 06/12/01

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**************************************************
*                                                *
*   This output was produced by the model:       *
*                                                *
*                GWSCREEN                        *
*                Version 2.5a                    *
*   A semi-analytical model for the assessment   *
*   of the groundwater pathway from the leaching *
*   of surficial and buried contamination and    *
*  release of contaminants from percolation ponds *
*                04/05/2001                      *
*                Arthur S. Rood                  *
*          Idaho National Engineering and        *
*            Environmental Laboratory            *
*                PO Box 1625                     *
*            Idaho Falls, Idaho 83415            *
**************************************************
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OUTPUT FILE NAME:
juniper.out
INPUT FILE NAME:
juniper.PAR
Title: Nitrate at Juniper mine GWSCREEN Ver 2.5 25 m vert avg source (Card 1)

Model Run Options

IMODE Contaminant Type and Impacts: 5
ITYPE (1) Vert Avg (2) 3D Point (3) 3d Avg: 1
IDISP (0) Fixed Dispersivity (1-3) Spatially Varying: 0
KFLAG (1) Max Conc (2) Conc vs Time (3) Grid Output: 1
IDIL (1) No dilution factor (2) Include Dilution Factor: 1
IMOIST Source Moisture Content Option: 1
IMOISTU Unsaturated Moisture Content Option: 1
IMODEL (1) Surface/Burried Src (2) Pond (3) Usr Def: 1
ISOLVE (1) Gaussian Quarature (2) Simpsons Rule: (Aquifer) 1

ISOLVEU (1) Gaussian Quarature (2) Simpsons Rule: (Unsat Zone) 1
Health Effects: Carcinogenic incidence risk for non-radiological contaminants
Output mass/activity units: mg
Output concentration units: mg/m**3
Dose/Risk Conversion Units: kg-d/mg
Output health effects units: carcinogenic risk

Exposure Parameters

Body Mass (kg): 70. Averaging Time (days): 25550.
Water Ingestion (L/d): 2.000E+00 Exposure Freq (day/year): 3.500E+02
Exposure Duration (y): 3.000E+01 Limiting Dose: 1.000E-06

Site Parameters

X Coordinate: 0.000E+00 Y Coordinate: 0.000E+00
Source Length (m): 3.050E+00 Source Width (m): 3.050E+00
Percolation Rate (m/y): 1.000E-01
Source Thickness (m): 1.230E+00 Src Bulk Density (g/cc): 1.500E+00
Source Moisture Content: 3.000E-01

Unsaturated Zone Parameters

Unsat Zone Thickness (m): 9.600E+00 Unsat Bulk Density: 1.900E+00
Unsat Dispersivity (m): 1.000E+00 Unsat Moisture Content: 3.000E-01

Aquifer Zone Parameters

Longitudinal Disp (m): 9.000E+00 Transverse Disp (m): 4.000E+00
Aquifer Thickness (m): 1.500E+01 Well Screen Thickness (m): 1.500E+01
Darcy Velocity (m/y): 5.700E+01 Aquifer Porosity: 1.000E-01
Bulk Density (g/cc): 1.900E+00

Calculated Flow Parameters

Percolation Water Flux (m3/y): 9.3025E-01
Unsat Pore Velocity (m/y): 3.3333E-01
Aquifer Pore Velocity (m/y): 5.7000E+02
Longitudinal Disp (m**2/y): 5.1300E+03
Transverse Disp (m**2/y): 2.2800E+03

Contaminant Data

Contaminant Name: Nitrate
Half Life (y): 1.000E+25
Other Source Loss Rate (1/y): 0.000E+00
Kd Source (ml/g): 0.000E+00
Solubility Limit (mg/L): 1.183E+06
Molecular Weight (mg/L): 8.000E+01
Initial mass/activity: 3.300E+09
Kd Unsat (ml/g): 0.000E+00
Kd Aquifer (ml/g): 0.000E+00
Risk/Dose Conversion Factor: 1.000E+00

Calculated Contaminant Values

Decay Constants (1/y): 6.9315E-26
Leach Rate Constant (1/y): 2.7100E-01
Initial Pore Water Conc (Ci or mg/m**3): 9.6136E+08
Solubility Limited Mass (mg): 4.0608E+09
Unsaturated Retardation Factor: 1.0000E+00
Mean Unsaturated Transit Time (y): 2.8800E+01
Leading Edge Arrival Time (y): 2.3751E+00
Aquifer Retardation Factor: 1.000E+00
Minimum Peak Window Time (y): 1.1875E+00
Maximum Peak Window Time (y): 5.4382E+01

Results for Receptor X = 1.53000E+00 Y = 0.00000E+00

Peak Concentration (mg/m**3): 6.368E+03
Time of Peak (y): 2.7287E+01
Concentrations Averaged Between: 1.2287E+01 and 4.2287E+01 years
Average Concentration (mg/m**3): 4.823E+03
Maximum Dose: 5.663E-02
Maximum Allowable Inventory (mg): 5.827E+04
Execution Time (Seconds): 0